

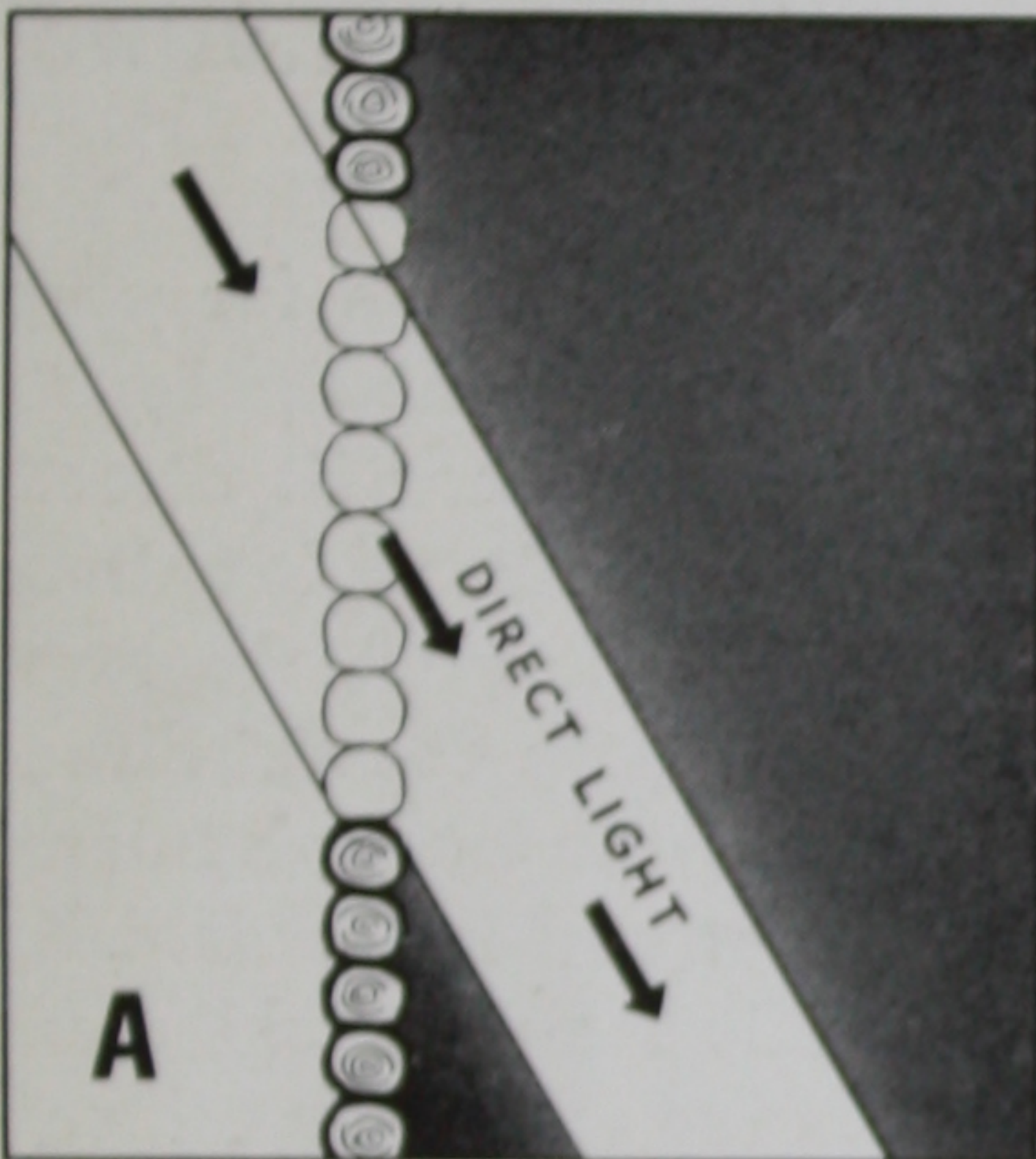
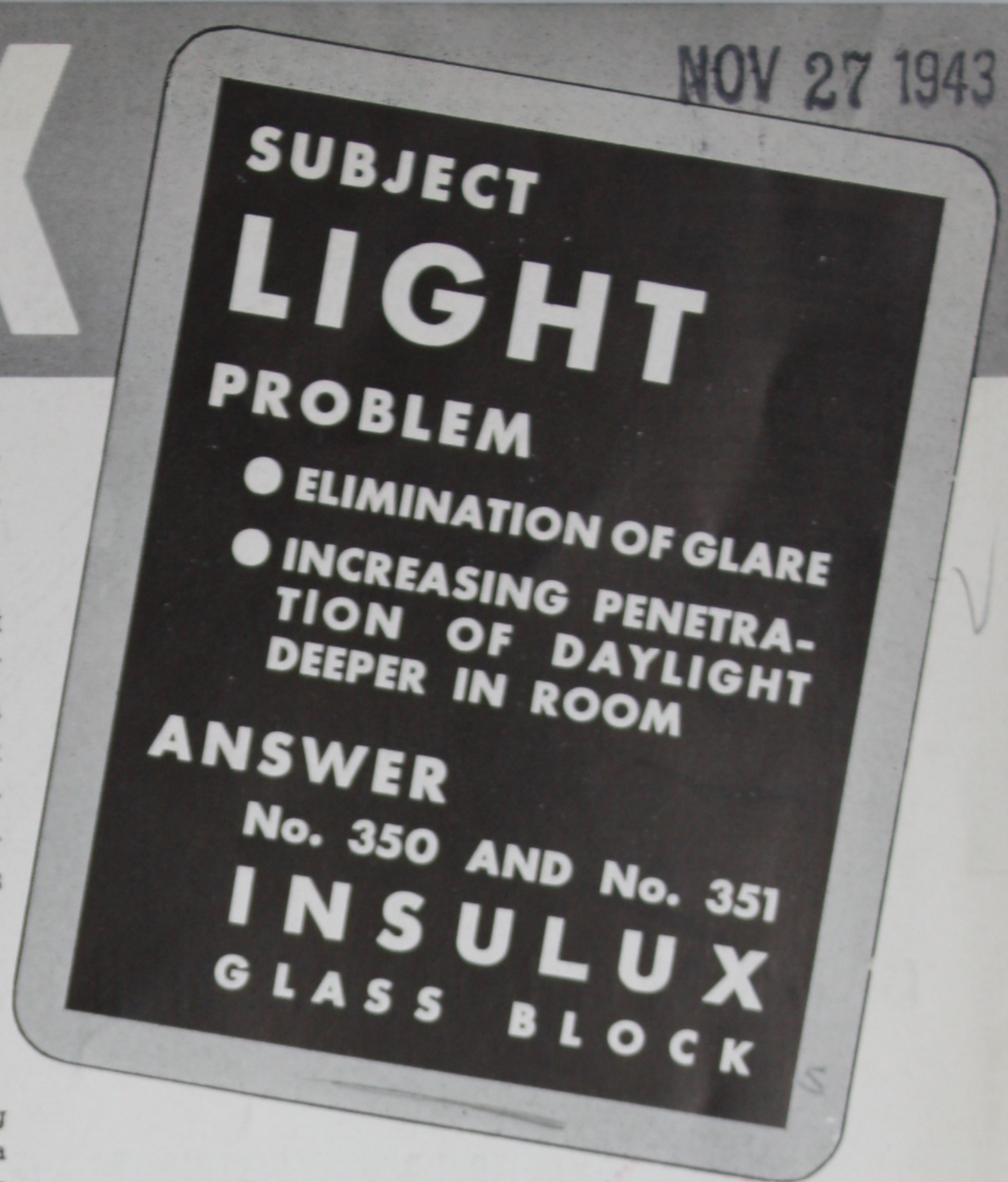
1430-25

INSULUX

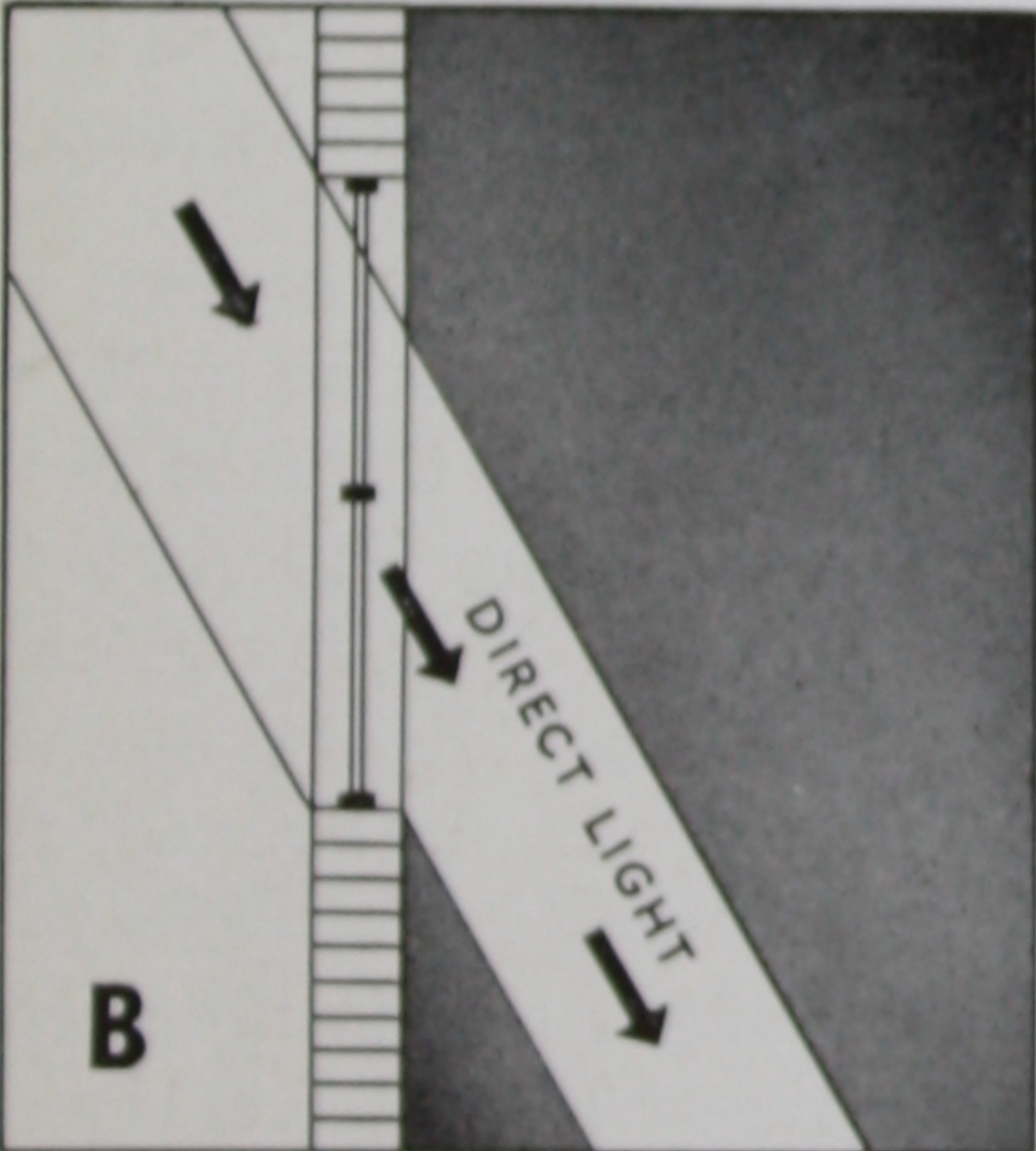
NOV 27 1943

Insulux Glass Block designs are divided into three general classifications according to their functions: (1) Decorative block, (2) General purpose block, and (3) Light Directional block.

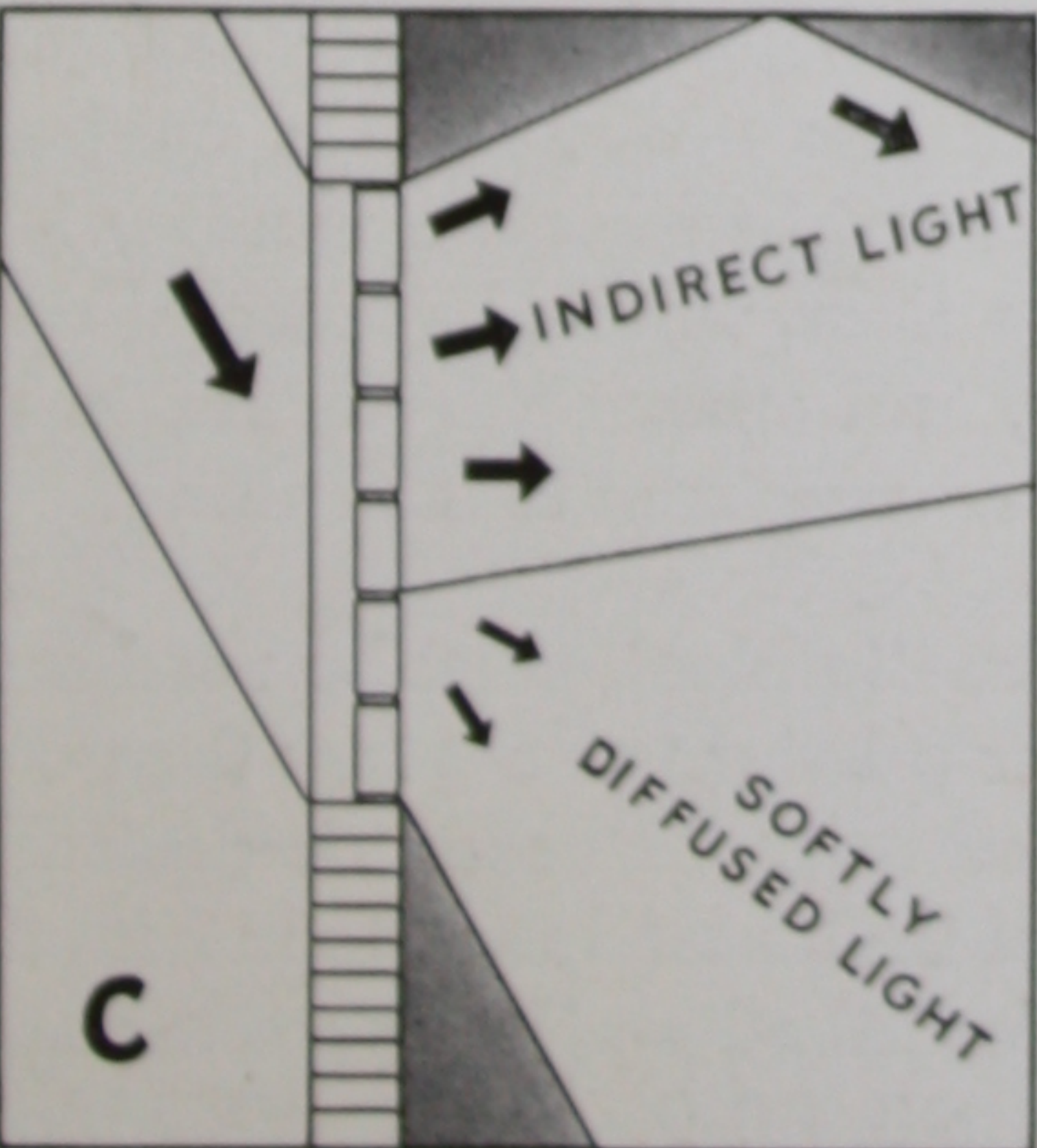
The decorative block are used where the design effect is most important. General purpose block are for interior and exterior use where good light transmission is required—which on certain exposures may require some shading. The light directional block are used where the best diffusion and distribution of light without glare are required. This folder describes in detail the performance of light directional block which offer many advantages not heretofore available in any light transmitting material.



Direct light through unglazed opening



Direct light through ordinary window



Indirect light through glass block.

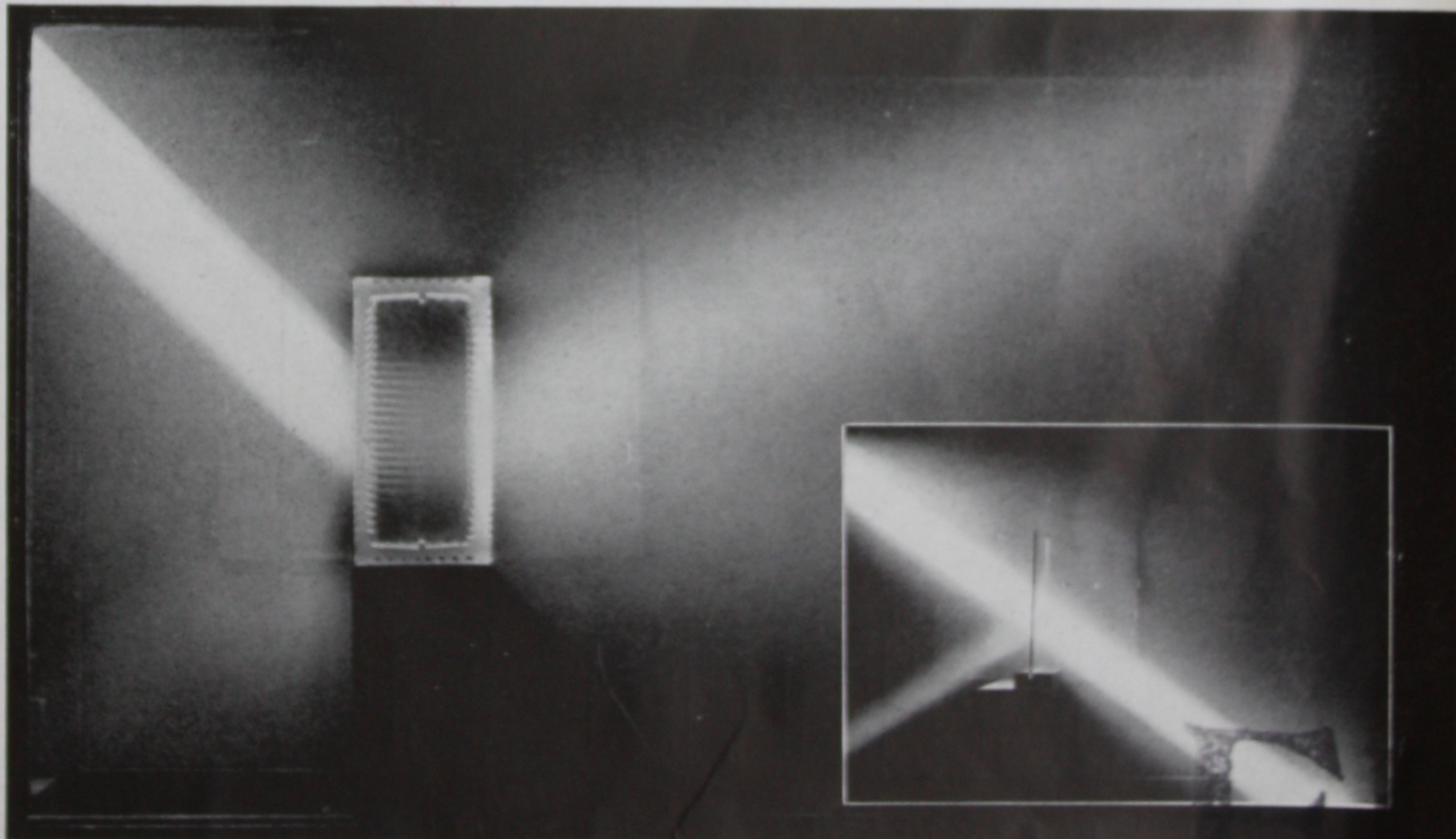
A The earliest method of introducing light into rooms was by cutting a hole in the wall as indicated in the drawing of the log cabin at left.

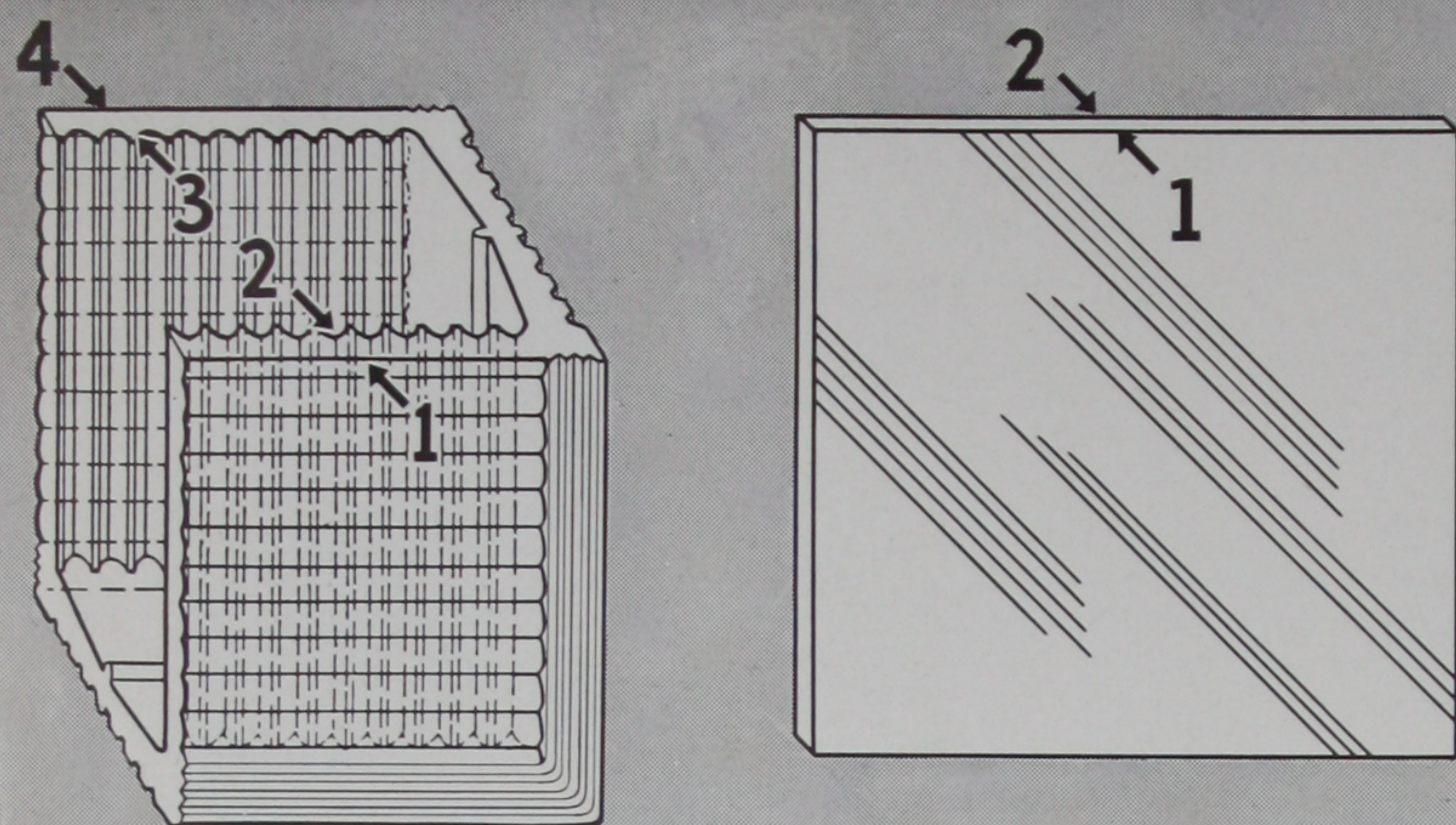
B An improvement over the hole in the wall came with the introduction of single glazing, although this method offered little in controlling diffusion or distribution of light.

C Only in the last ten years have glass block made it possible to bring to interiors well diffused light and to control light distribution and direction. Thus it is now possible to get light of more uniform intensity throughout the entire room.

No. 351 LIGHT-DIRECTIONAL BLOCK TURNS LIGHT UPWARD

The photograph below shows how a beam of light passes through a light directional block of the type indicated in sketch C. This change in the direction of the light is made possible by the use of prisms on both interior faces of the block. Compare this to the inset photograph which shows a picture of the same beam of light passing through a plain piece of glass as used in sketch B. It will be noted that the plain glass does not change the direction of the light in any way.





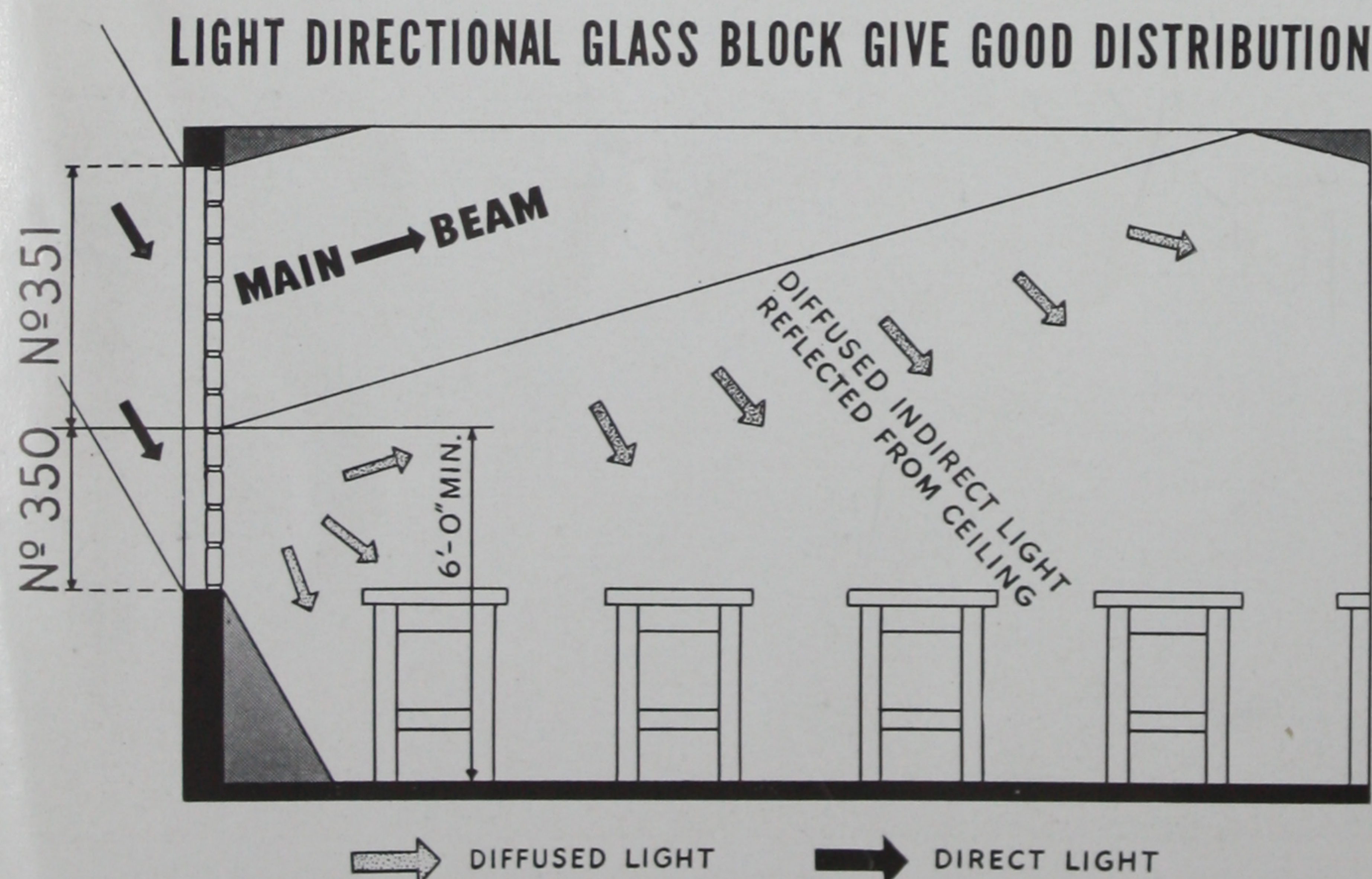
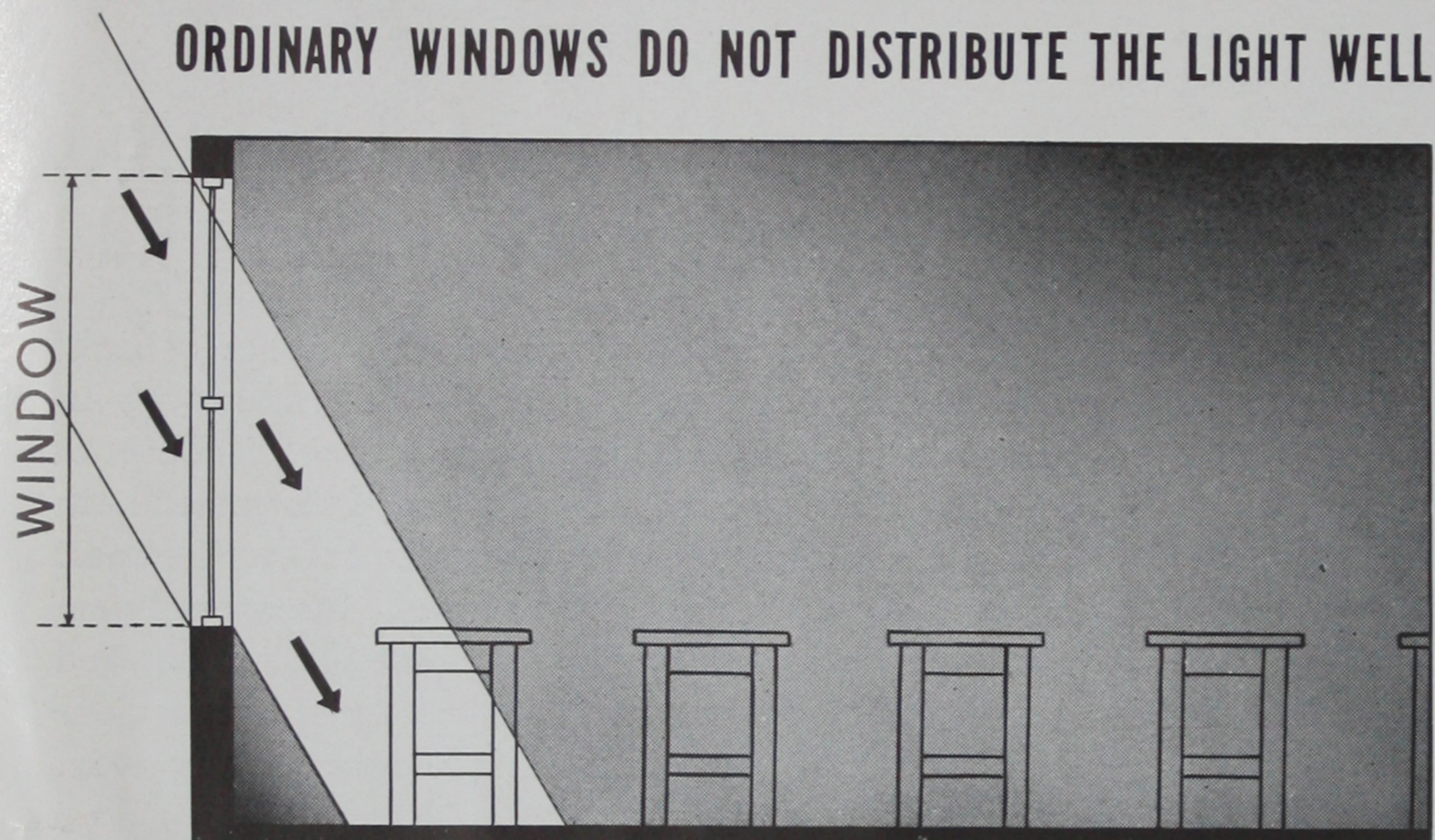
LIGHT CONTROL THROUGH GLASS

INSULUX 4 surfaces available for light controlling designs.

WINDOWS 2 surfaces available.

The control of light direction and diffusion to an extent where glare is eliminated and good distribution obtained can be accomplished by impressing proper designs on the faces of glass. Obviously, greater control can be obtained by the use of four faces than by the use of only two.

COMPARISON OF LIGHT DISTRIBUTION THROUGH GLASS BLOCK AND ORDINARY WINDOWS



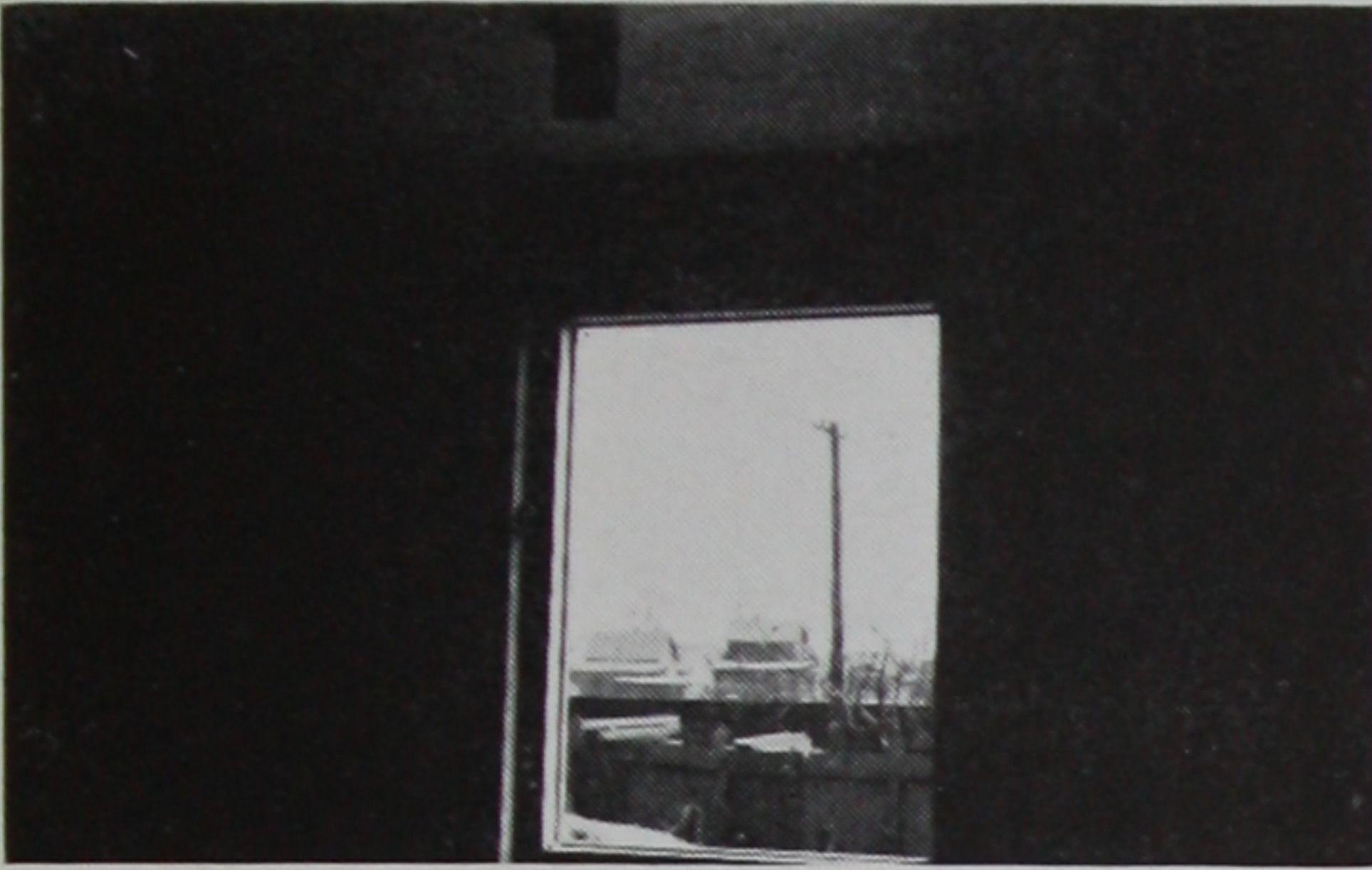
Ordinary windows are inadequate for proper daylighting of a room because the light passed through them is not diffused nor its direction changed. Consequently, objectionable extremes exist. In the illustration at the left, the arrows indicate the approximate path of light through an ordinary window, showing too high intensity of light near the window and insufficient light deep in the room. This lack of light control affects the efficiency of the worker and the condition is not remedied by the use of shades, for that means a reduction of light, which is apt to handicap those working far back in the room.

However, light directional blocks correct this condition by directing the light to the ceiling—regardless of the sun's angle to the face of the block. The principle of directing the light to the ceiling has many advantages. First, it eliminates glare because the main beam of light is directed upward above the line of vision. Second, this light in passing upward takes full advantage of the highly reflective ceiling and is redirected deep into the room as shown in the lower sketch. Thus, we have, in effect, very desirable indirect daylighting. This reflected light is a better working light, causing less eye-strain. In contrast, the main beam of light through a window falls directly upon the floor, which, because of dark colors, furniture, and other obstructions, has a poor reflectivity as compared to the ceiling.

The No. 351 prismatic block must be used only above eye line or a height of not less than 6 ft. above the finished floor. Where it is desirable to have the sill of the panel lower than 6 ft., the No. 350 block, described on the opposite page, is to be used up to the 6 ft. height. This block is similar in appearance to the prismatic type.

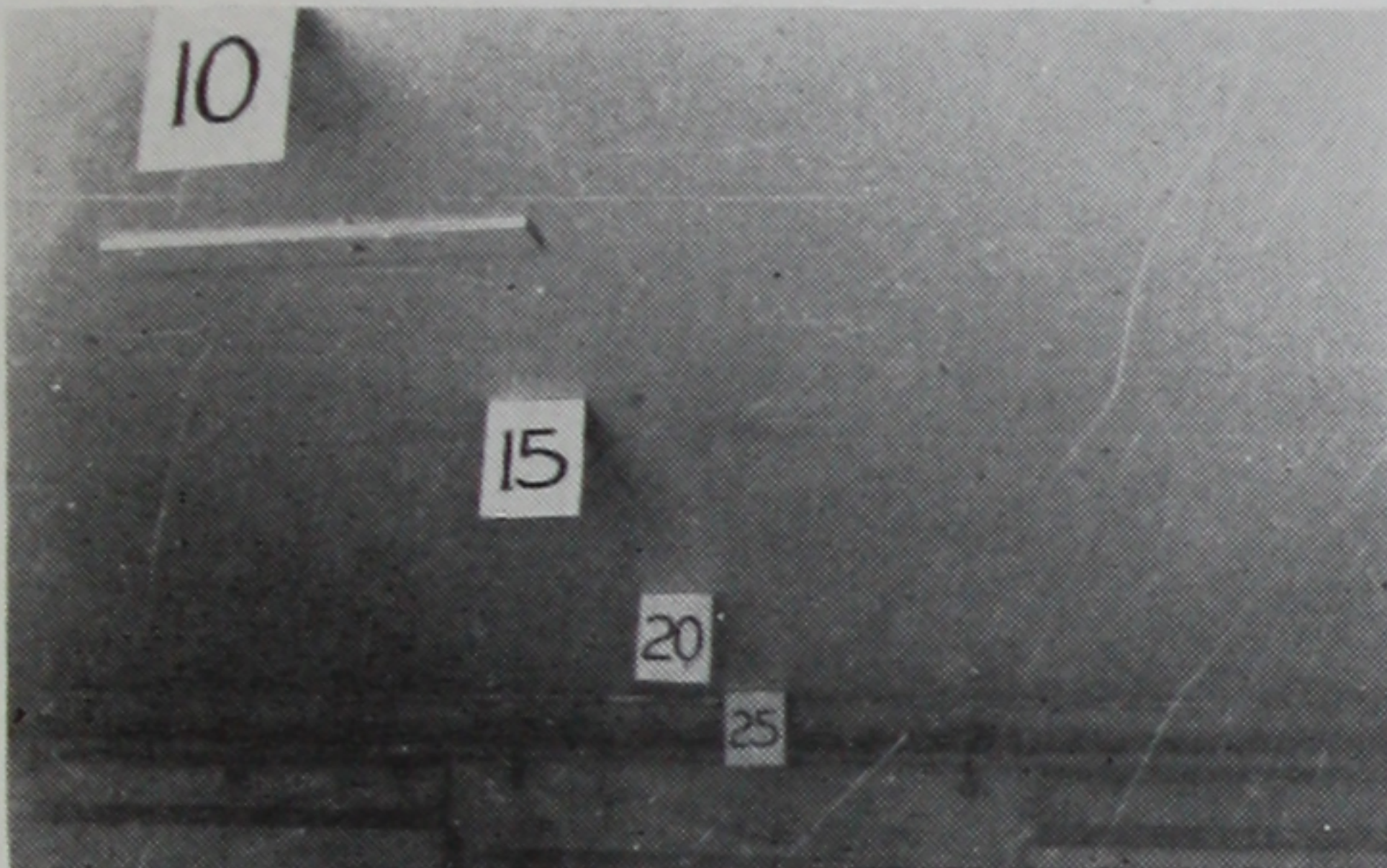
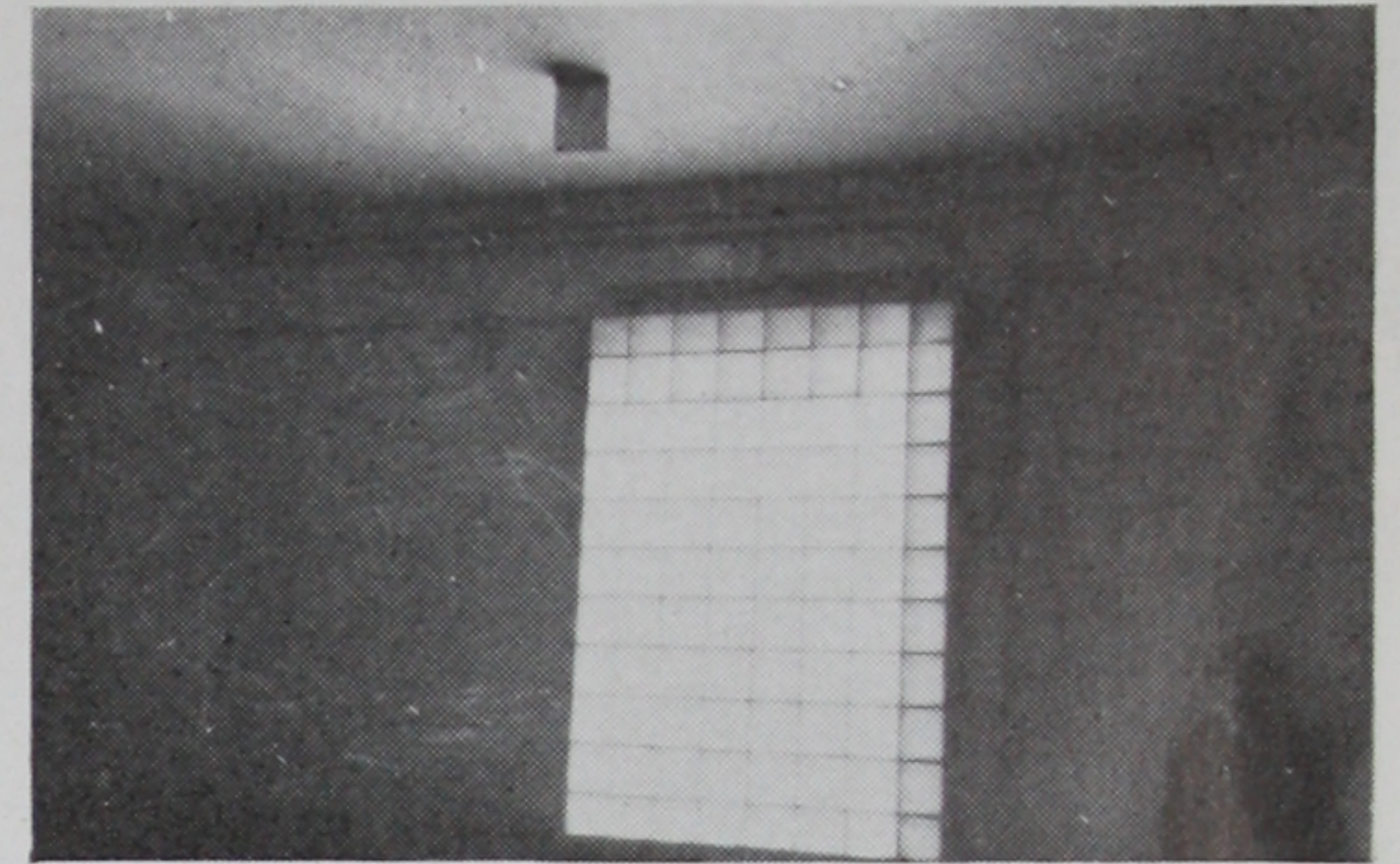
MORE USABLE LIGHT THROUGH PRISMATIC BLOCK THAN THROUGH THE CLEAR OPENING

These photographs show how a panel of the No. 351 prismatic block (top right) puts more usable light into a room than a clear unglazed opening (shown at the left).



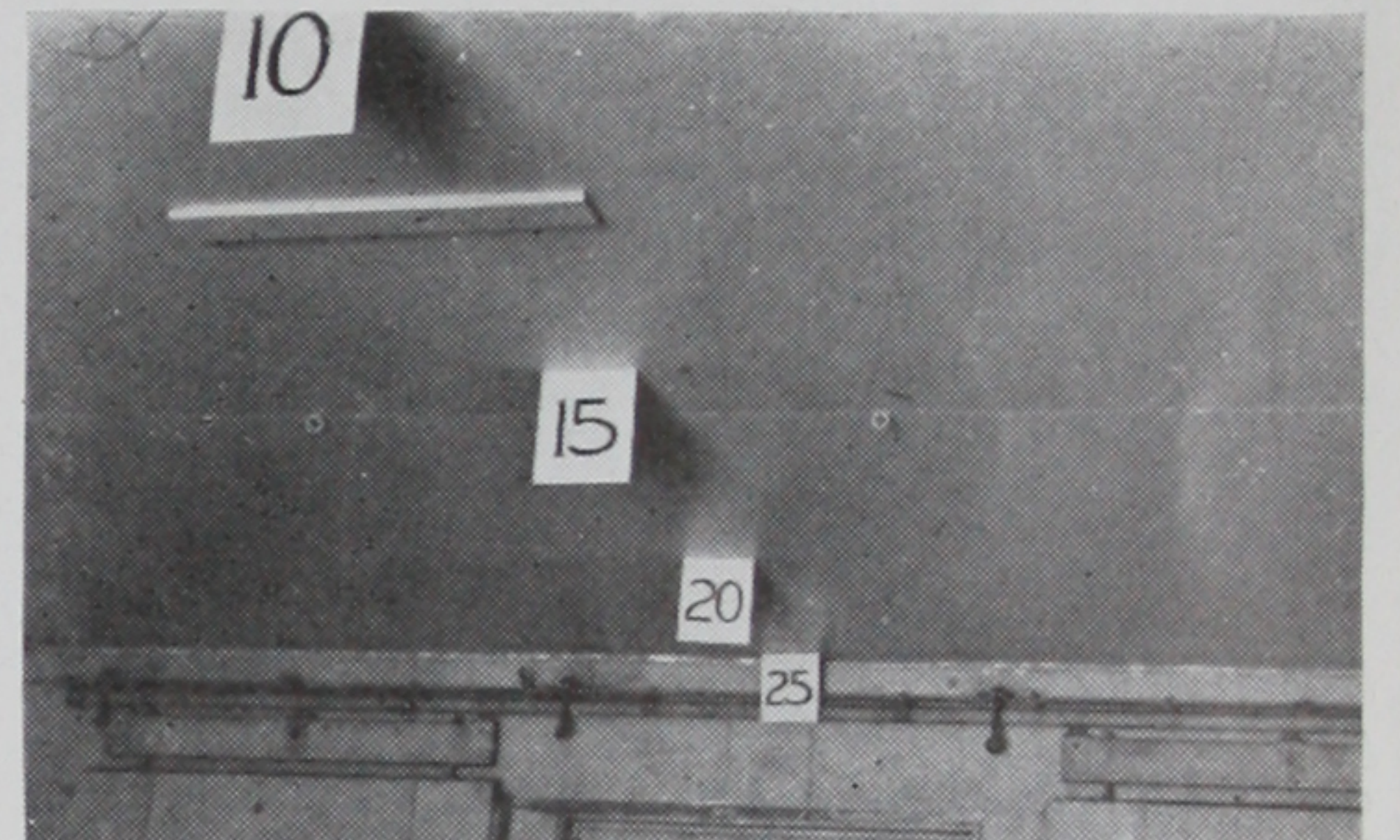
Clear opening—note small amount of light on ceiling and walls, and the difficulty of discerning details within the room.

Same opening with sliding block test panel in place distributes light well and reveals figure obscured in other picture.



View towards rear wall with opening clear. Note lack of wall detail, poor light on last card hung from ceiling at a distance of 25 feet from the opening.

View towards rear wall with prismatic panel in place. Note detail on rear wall and uniform lighting on the ceiling from first to last card.



No. 350 NO-GLARE BLOCK GIVES LIGHT UNIFORMITY

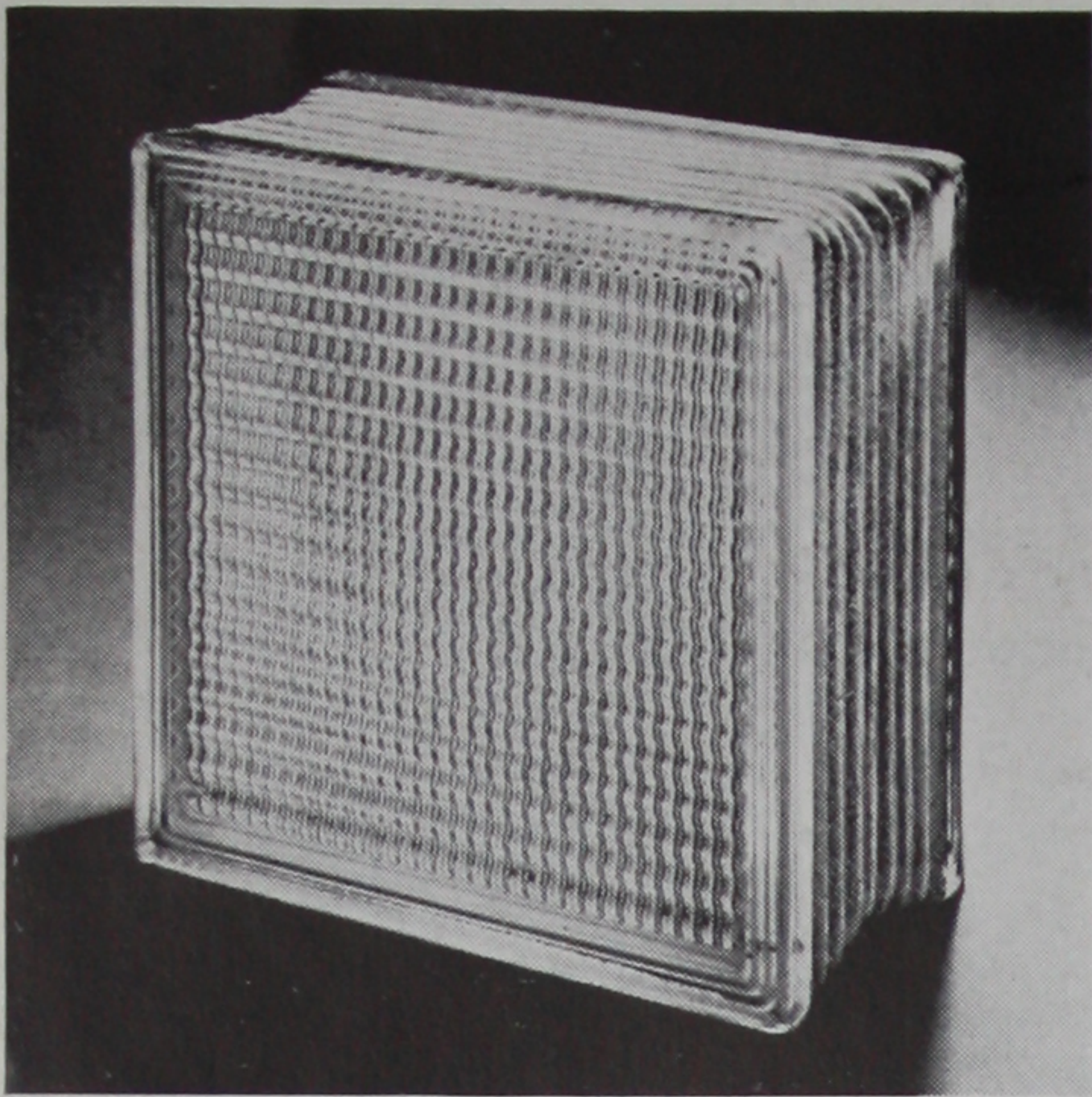
This block is designed for use in panels in combination with the light directing block No. 351 when the sills of the panels are less than 6 ft. above the floor. This block may also be used for the entire height of the panel when glare elimination is important and it is not feasible to use the No. 351 block in the upper part of the panel. It is designed to eliminate all objectionable glare and to transmit well diffused light as uniformly as possible for all sun positions.

An unusual and desirable feature of this No. 350 block is its face design which rejects the too intense light when the sun is directly opposite the panel (such as would occur on the south exposure at high noon or on the west exposure in late afternoon) and accepts a maximum amount of light when the sun is at sharp angles to the panel (such as on the south exposure late in the afternoon or early morning). By incorporating these principles in the design of this block, more uniform light transmission is obtainable for a greater variety of sun angles.

In the adjacent photograph, looking down on the top cross section of a No. 350 glass block, a beam of light may be seen striking the surface of the block from a point directly opposite to its face. Despite the directness of the beam, there is a wide and even distribution of light within the room to provide adequate light with absence of glare.

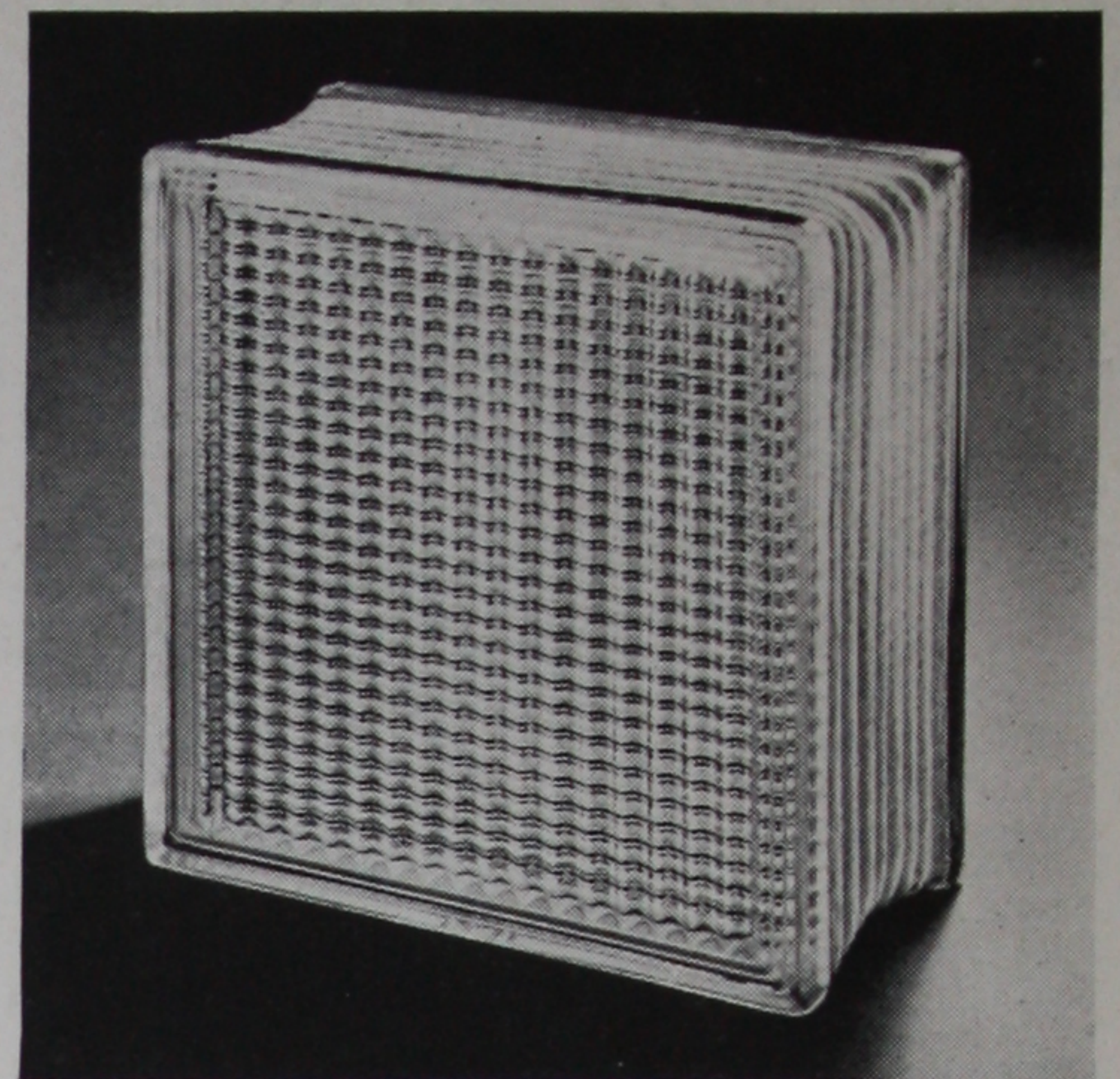


This photograph shows the even diffusion of light through the No. 350 block.

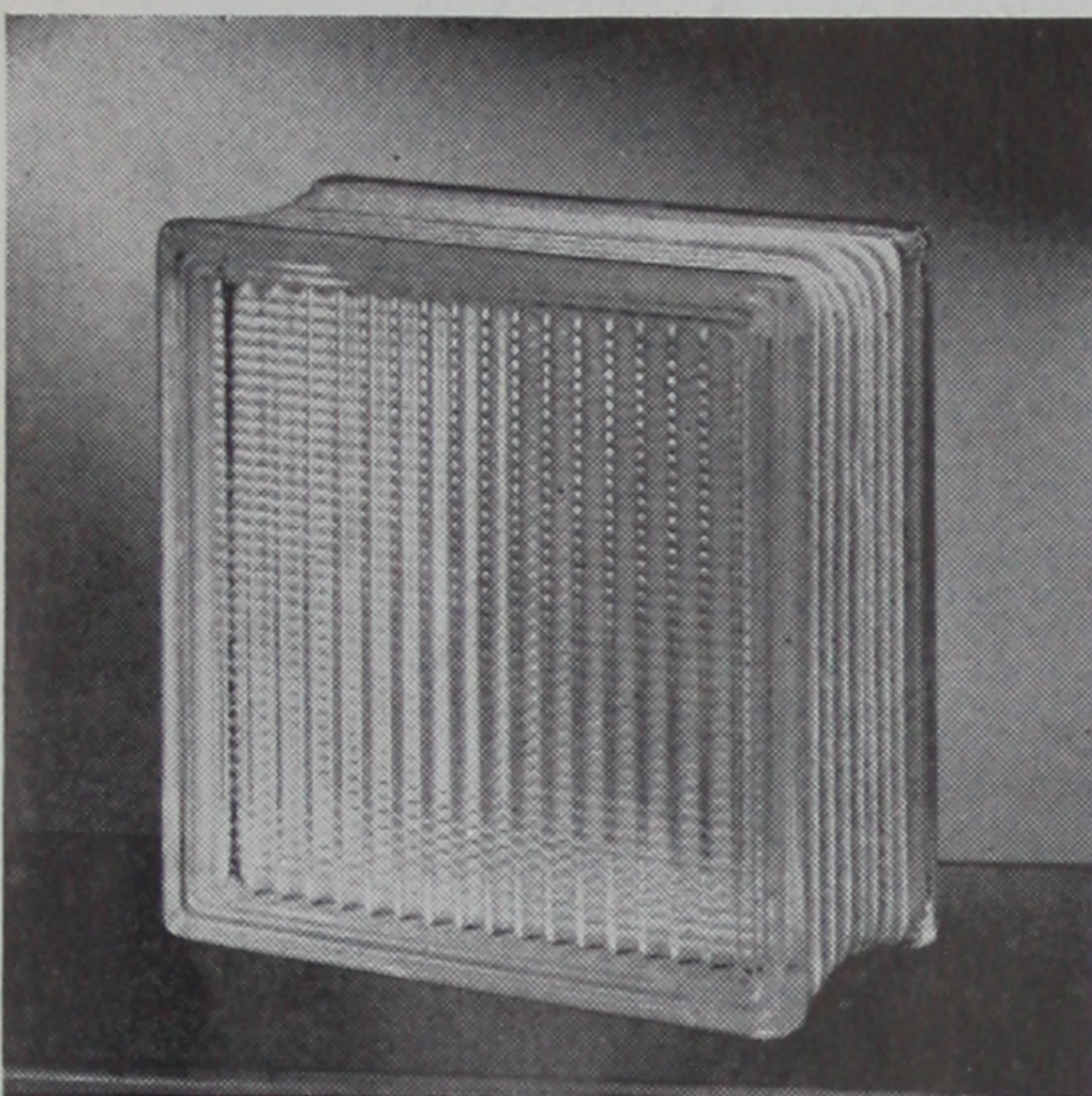


No. 350

Both No. 350 and No. 351 are prismatic blocks designed to perform definite light functions on sun exposures by controlling the direction and distribution of light. The No. 350 block has special vertical prisms and the No. 351 horizontal light directing prisms on their two interior faces, and being hermetically sealed, cannot collect dust and dirt (occurring in single pane glass) to impair their effectiveness. Available in size $7\frac{3}{4} \times 7\frac{3}{4} \times 3\frac{7}{8}$ inches.

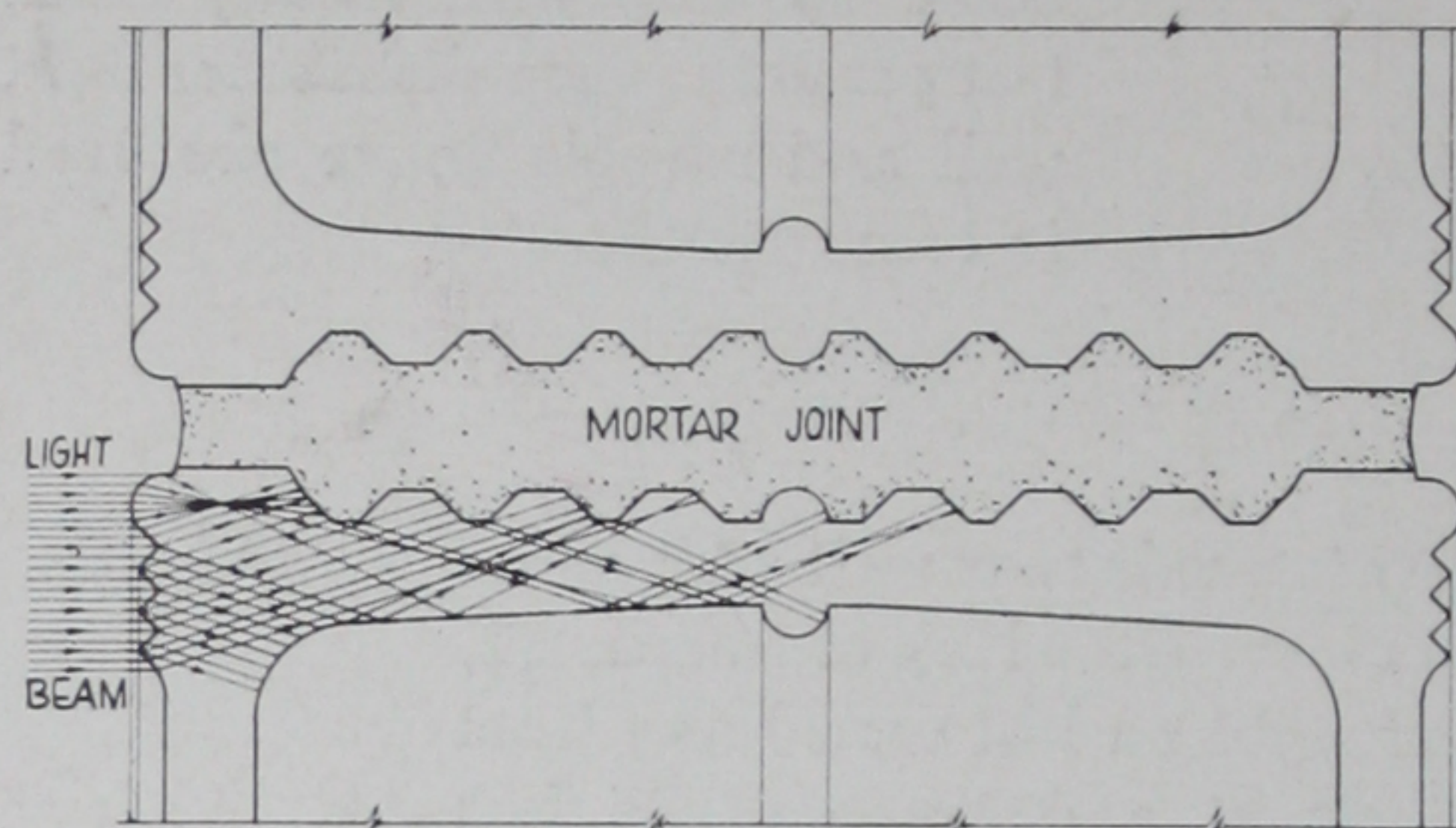


No. 351



No. 360

This block is the same as the No. 354 except for a fibreglas mat insert and is to reduce glare on moderate sun exposures.



The drawing above illustrates how light passing through the translucent edge of Insulux prismatic block is refracted into the mortar joint or through the block face to eliminate glare around the edge of the block, thus obtaining uniform surface light for the entire block.

OBJECTIVE

For a number of years the Owens-Illinois Glass Company has made an intensive study of the light characteristics of glass block. This program has been carried on both in the company's own research laboratories and at several universities. This continuous study and testing on prismatic structures has lead to a whole new concept of light control, and the proper transmission and distribution of light without the use of shades on bright days has been the objective in natural day lighting. Consequently, we have developed our light directional and no-glare blocks especially to handle extremely difficult daylighting problems.

However, in addition to the blocks discussed in this folder, there are many others available in various designs and

sizes, several of which handle average daylighting problems satisfactorily. The general purpose blocks are for both exterior and interior use, including partitions. Besides these designs there are a number of decorative blocks which are particularly well adapted for use in decorative architectural effects. Corner and radial blocks complete a well rounded line and permit many variations in building design.*

Industry is giving ever-increasing recognition to the advantages of glass block as a dependable building material—not only for light control but also for the very definite benefits realized in heating control and reduced maintenance.

*Write for Booklet describing our complete line of blocks and their intended use.

WHAT ABOUT YOUR PARTICULAR LIGHT PROBLEM?

We will be pleased to have our engineers analyze the daylighting problem within your own plant and make suggestions relative to a solution. Should you wish this analysis—or contemplate the installation of an Insulux test panel—please mail your inquiry to the Owens-Illinois Glass Company, Insulux Products Division, Toledo, Ohio.

Printed in U. S. A.

Copyright 1941—IB-38—418—25M

INSULUX GLASS BLOCK
OWENS-ILLINOIS GLASS COMPANY

ID 90-B2674-725